WHAT IS CLAIMED IS:

1. A turbine bucket including an airfoil, platform, shank and dovetail, said airfoil having an internal nominal core profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define internal core profile sections at each distance Z along the airfoil, the profile sections at the Z distances being joined smoothly with one another to form said airfoil internal core profile.

2. A turbine bucket according to Claim 1 wherein said airfoil has side walls and ribs extending therebetween, said ribs being spaced from one another between leading and trailing edges of the airfoil and defining with internal wall surfaces of said side walls internal cooling passages along the length of the airfoil, said smooth continuing arcs extending along the internal wall surfaces of the cooling passages and between adjacent passages along said side walls.

3. A turbine bucket according to Claim 2 wherein said smooth continuing arcs pass through junctures between the ribs and each of the side walls.

4. A turbine bucket according to Claim 1 wherein said bucket airfoil has an external airfoil shape, said internal core profile sections including generally

airfoil-shaped portions within the bucket airfoil and generally conform to profile sections of said external airfoil shape of the bucket airfoil less a wall thickness therebetween.

5. A turbine bucket according to Claim 1 forming part of a first stage of a turbine.

6. A turbine bucket according to Claim 1 wherein said internal core profile lies in an envelope within ±0.050 inches in a direction normal to any internal core surface location.

7. A turbine bucket including an airfoil, platform, shank and dovetail, said airfoil having an internal nominal core profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define internal core profile sections at each Z distance along the airfoil, the profile sections at the Z distances being joined smoothly with one another to form said bucket airfoil internal core profile, the X, Y and Z distances being scalable as a function of the same constant or number to provide a scaled-up or scaled-down internal core profile.

8. A turbine bucket according to Claim 7 wherein said airfoil has side walls and ribs extending therebetween, said ribs being spaced from one another between leading and trailing edges of the airfoil and

defining with internal wall surfaces of said side walls internal cooling passages along the length of the airfoil, said smooth continuing arcs extending along the internal wall surfaces of the cooling passages and between adjacent passages along said side walls.

9. A turbine bucket according to Claim 7 wherein said smooth continuing arcs pass through junctures between the ribs and each of the side walls.

10. A turbine bucket according to Claim 7 wherein said bucket airfoil has an external airfoil shape, said internal core profile sections including generally airfoil-shaped portions within the bucket airfoil and generally conform to profile sections of said external airfoil shape of the bucket airfoil less a wall thickness therebetween.

11. A turbine bucket according to Claim 7 wherein said integral core shape lies in an envelope within ±0.050 inches in a direction normal to any internal core surface location.

12. A turbine comprising a turbine wheel having a plurality of buckets, each of said buckets including an airfoil, a platform, a shank and a dovetail, each airfoil having an internal nominal core profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs,

define internal core profile sections at each distance Z along the airfoil, the profile sections at the Z distances being joined smoothly with one another to form said bucket internal core profile.

13. A turbine according to Claim 12 wherein each said airfoil has side walls and ribs extending therebetween, said ribs being spaced from one another between leading and trailing edges of the airfoil and defining with internal wall surfaces of said side walls internal cooling passages along the length of the airfoil, said smooth continuing arcs extending along the internal wall surfaces of the cooling passages and between adjacent passages along said side walls.

14. A turbine according to Claim 12 wherein said smooth continuing arcs pass through junctures between the ribs and each of the side walls.

15. A turbine according to Claim 12 wherein each said bucket airfoil has an external airfoil shape, said internal core profile sections including generally airfoil-shaped portions within the bucket airfoil and generally conforming to profile sections of said external airfoil shape of the bucket airfoil less a wall thickness therebetween.

16. A turbine according to Claim 12 wherein the turbine wheel comprises a first stage of the turbine.

17. A turbine according to Claim 12 wherein the turbine wheel has 92 buckets and X represents a distance parallel to the turbine axis of rotation.

18. A turbine according to Claim 12 wherein the X, Y and Z distances are scalable as a function of the same constant or number to provide scaled-up or scaled-down internal core profile.